

ABSTRACT OF THE DISCLOSURE

A target detection apparatus is provided which can detect and quantitatively measure various detection targets such as pathogens. For this purpose, the apparatus comprises an optical irradiation unit which irradiates light; an optical interference unit which can interact with the detection target, interferes with the light irradiated from the optical irradiation unit and radiates it as interference light and change the wavelength of the interference light after interaction with the detection target; and an wavelength change detecting unit which detects the wavelength change of the interference light radiated by the optical interference unit. The wavelength change detecting unit preferably measures spectrums before and after wavelength change of the interference light, and their differential spectrum. Also provided is a target detection substrate comprising a film-like material on a substrate which, when interacting with a detection target, changes the wavelength of the interference light.